

## **The role of radiological and nuclear medicine imaging methods in nasopharyngeal carcinoma**

Maja Jakič, Katarina Šurlan Popovič

Nasopharyngeal carcinoma (NPC) is a rare disease in the Slovenian population. Treatment depends also on the TNM stage of the carcinoma, which is determined also with the help of radiologic and nuclear medicine imaging methods. The radiologic imaging examination method of choice for detecting NPC and lymph node metastases

is MRI, whereas spreading of NPC to bone structures is best shown using CT. To continue, PET-CT is the method of choice for detecting distant metastases and disease recurrence 3 to 6 months after completed treatment.

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## **16th World Congress on Gastrointestinal Cancer**

Irena Oblak, Jernej Benedik

The 16th World Congress on Gastrointestinal Cancer took place in Barcelona from 25 to 28 June 2014. The congress was attended by general practitioners, gastroenterologists, hepatologists, internist oncologists, surgeons and different researchers, who wish to upgrade their knowledge needed for treating patients with gastrointestinal cancer. The congress hosted presentations about the importance of screening, diagnostics and recent findings regarding clinical management of patients with common and less common types of gastrointestinal cancer. The emphasis was on individual patient management and the importance of a multidisciplinary approach, as

well as most recent molecular mechanisms known to date. Over 70 world-renowned lecturers, all experts in their fields, presented the latest findings and recommendations or led small targeted groups of physicians who discussed issues of their interest. At the congress, the participants were also given a chance to present our research results, with the abstracts being published in the *Annals of Oncology*. Three specialists from Slovenia attended the congress, namely a gastroenterologist, an internist oncologist, and a radiation therapist, each with his or her own contributions.

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## **The importance of hypoxia in radiation therapy**

Peter Korošec, Mitja Anžič, Monika Češnjevar, Gaber Plavc, Irena Oblak

The success of radiation therapy (RT) treatment depends on numerous factors, one of which is also tumour cell oxygenation. Tumour cells which are well-supplied with oxygen can be up to 3 times more sensitive to radiation than hypoxic tumour cells. In addition, hypoxia functions as selective pressure in tumours, which results in the survival of only more malignant cells with diminished apoptotic potential. Presence of hypoxia increases the genomic instability and metastatic potential of tumour cells, while also increasing cell resistance to chemotherapy, all of which affects the success of treatment with RT. Hypoxia is a result of an imbalance between cellular respiration, concentration of oxygen in the blood and tumour perfusion, with

the most common pathogenic mechanisms being inappropriate vascularization, disturbed oxygen diffusion and anaemia which may be a consequence of cancer or treatment. Using invasive and most recent non-invasive diagnostic techniques, we can assess the proportion of hypoxic cells in the tumour, adapting the therapeutic approach accordingly. A better effect of irradiation of less oxygenated tumours can be achieved using radio sensitizers, by improving tumour oxygenation, through selective destruction of hypoxic cells, and with irradiation of hypoxic areas using higher doses of radiation and with the help of radio protectors or using modern irradiation techniques.

## New findings in systemic treatment of basal cell carcinoma

Janja Ocvirk

The majority of primary basal cell carcinomas (BCCs) are treated surgically or, in surface lesions, using non-surgical methods. The risk of recurrence increases with tumour size, poorly defined lesion margins, an aggressive histologic sub-type and previous recurrence. In some cases, the tumour can destroy the surrounding tissues (muscles, bones, cartilage etc.) due to long-term absence of treatment or aggressiveness of the tumour (locally advanced form of BCC - laBCC). In extremely rare cases, BCC spreads also to distant tissues (metastatic BCC - mBCC).

In multiple local recurrences or invasion of surrounding/distant structures (laBCC/mBCC), where surgery and/or radiation therapy are not appropriate, it is important to use a multidisciplinary approach in patient management.

Abnormal activation of the Hedgehog signalling pathway is responsible for the occurrence of the disease in 90 % of BCCs. By selectively binding to the transmembrane protein SMO (*Smoothed Transmembrane Protein*), the active substance vismodegib selectively inhibits

the abnormally activated signalling pathway. Phase II clinical trial ERIVANCE BCC reported on the efficacy and safety of vismodegib in patients with laBCC and mBCC. The primary objective of this study was objective response rate (complete and partial) as assessed by an independent review board. The study results showed that an objective response was achieved in 33.3% of patients with mBCC and 47.6% of patients with laBCC. Disease control (objective response + stable disease) was confirmed in 94% of patients with mBCC and 83% of patients with laBCC. After 24 weeks of treatment, a total of 54% of patients with laBCC had no histopathological signs of basal cell carcinoma. According to the most recent data, the median duration of objective response was 14.8 months in mBCC and 26.2 months in laBCC. The encouraging results of treatment with vismodegib in a phase II trial show a significant decrease in the size of multiple lesions and number of newly occurred lesions in patients with Gorlin syndrome. The most common adverse effects included muscle cramps, loss of taste, hair loss and fatigue.

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## Epithelial ovarian cancer, fallopian tube cancer, primary peritoneal serous cancer (PPSC) – systemic treatment recommendations

Erik Škof, Olga Cerar

Epithelial ovarian cancer is known to be one of the most sensitive to systemic treatment with chemotherapy. Objective response to treatment was achieved in more than 80% of patients. Therefore, chemotherapy treatment is a standard part of primary treatment after completed surgery (adjuvant treatment). If surgical treatment is not possible, patients begin treatment with preoperative (neoadjuvant) chemotherapy, which is followed by surgery. In primary systemic treatment, we have been using chemotherapy in combination with taxanes and platinum-based preparations. In systemic treatment of fallopian tube cancer, we also use – besides chemotherapy – bevacizumab, an inhibitor of the vascular endothelial growth factor (VEGF).

Systemic treatment presents the principal treatment also in disease recurrence. The type of systemic treatment in disease recurrence depends on the time elapsed since the end of primary treatment until recurrence. In the last couple of years, we have been again witnessing the introduction of new medicines for treatment of patients with fallopian tube cancer. For this reason, the Institute of Oncology Ljubljana this year updated its guidelines for systemic treatment of epithelial ovarian cancer. In this paper, we present the current recommendations for systemic treatment of epithelial ovarian cancer in Slovenia. Epithelial ovarian cancer, fallopian tube cancer and primary peritoneal serous cancer (PPSC) have the same clinical course and the same systemic treatment, therefore they are all managed in the same manner.

## ASCO Annual Meeting

Tanja Čufer

In the end of May this year, Chicago hosted the traditional annual meeting of oncologists from around the world, which was organised by the American Society of Clinical Oncology (ASCO). Once again, the meeting was attended by more than 30,000 oncologists and other scientists from all over the world.

The main topic of this year's ASCO meeting was definitely cancer immunotherapy. For many years, we have hoped to be able to destroy or at least control cancer cells by stimulating the organism's own defence. There have been some ups but mostly many downs of

immunotherapy. Interferons, interleukins and vaccines have shown a very small level of efficacy, and, even so, only in some types of cancer, alongside a disproportionately high toxicity. A breakthrough was achieved a few years ago, when new immuno-medicines, inhibitors of control switches in T lymphocytes (so-called checkpoint inhibitors), were introduced into clinical trials. In many types of cancer, these medicines led to remissions, which were, most importantly, long-term in patients with remission.

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## Capecitabine-induced transmural myocardial infarction – case report

Miroslav Vujasinović, Marko Boc, Zdenko Kikec, Cirila Slemenik Pušnik

Fluoropyrimidine are agents that comprise the so-called antimetabolites (inhibitors of cell metabolism). An important representative of this group are 5-fluorouracil (5-FU) and capecitabine (an oral analog of 5-FU), which belong to a group called pyrimidine analogs. Both represent the cornerstone of chemotherapy regimens, which are used in the treatment of solid tumors of the gastrointestinal tract and are indispensable in the treatment thereof. Among the rare side-effects of both appears cardiotoxicity including myocardial infarction. The

spectrum of capecitabine-induced cardiotoxicity is wide and includes angina, arrhythmias, myocardial infarction and death. Due to its increasing use in oncologic therapy, specialists should be aware of cardiotoxicity especially when used in patients with the history of ischaemic heart disease.

We present a case of a female patient without previous cardiovascular symptoms who developed transmural myocardial infarction during the treatment with capecitabine.

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